

Patent Claims

1. Apparatus for adapting the transmission data rate to the transmission quality of a transmission channel (11) comprising
a quality meter (27) for determining the transmission quality (28) of the transmission
5 channel (11), and
a definition means (29) for defining a maximum transmission data rate of the
transmission channel (11) dependent on the determined transmission quality (28).
2. Apparatus according to claim 1, characterized in that the definition
means (29) determines the maximum transmission data rate (28) dependent on a
10 specific, maximally allowed error rate.
3. Apparatus according to claim 1 or 2, characterized in that the definition
means (29) for determining the maximum transmission data rate (28) defines a
corresponding encoding method or mapping method.
4. Apparatus according to one of the claims 1 through 3, characterized in
15 that the apparatus additionally comprises a selection means (33) for selecting a
transmission data rate (34) dependent on the maximum transmission data rate (30)
determined by the definition means (29) and dependent on a specific, requested
transmission data rate (32).
5. Apparatus according to one of the claims 1 through 4, characterized in
20 that the selection means (33) for the selection of the transmission data rate (34) with a
specific, maximally allowed error rate selects an encoding method and mapping
method.
6. Apparatus according to one of the claims 1 through 5, characterized in
that
25 the quality meter (27) respectively determines the transmission quality (28) for
different modulation methods,
the definition means (29) defines the maximum transmission data rate (30) for each of
the different modulations methods, and
the selection means (33) additionally selects the employed modulation method.

7. Apparatus according to one of the claims 1 through 6, characterized in that the transmitter (10) for the transmission of digital information (13) via the transmission channel (11) contains:

a digital channel encoding device (50) for encoding the digital information, a
5 bit/symbol converter 15 for presentation of the digital information (13) in the form of symbols (16), and

a modulator (17) for mapping the symbols (16) onto signal values (18) for transmission via the transmission channel;

and in that the receiver (12) contains:

10 a demodulator (55) for converting received signal values (19) into detected symbols (23), and

a symbol/bit conversion (24) for converting the received symbol stream (23) into an encoded bit stream (53), and

15 a decoder means (24) for presentation of the detected symbols (23) as detected digital information (25).

8. Apparatus according to one of the claims 1 through 7, characterized in that the transmitter (10) additionally comprises:

an adjustable transmission signal amplifier (43), and

20 a control means (41) for boosting or reducing the transmission power of the transmission signal amplifier (43) dependent on a difference between the transmission quality (46) of the transmission channel (11) determined by the quality meter (27) and the transmission quality (47) that is required for the employed transmission data rate (34) with a specific, maximally allowed error rate.

9. Apparatus for adapting the transmission power for the transmission of
25 digital information (13) via a transmission channel (11) with a quality meter (27) for determining a transmission quality (28) of the transmission channel (11), and a control means (43) for boosting or reducing the transmission power of the transmission signal amplifier (43) dependent on a difference between the transmission quality (46) determined by the quality meter (27) and a transmission quality (47) that
30 is required for the transmission data rate (34) employed for the transmission of the digital information (13) with a specific, maximally allowed error rate.

10. Method for adapting a transmission data rate for the transmission of digital information (13) via a transmission channel (11) to the quality of the transmission channel (11), comprising the following steps:

- determining the transmission quality (28) of the transmission channel (11); and
5 defining a maximum transmission data rate (30) of the transmission channel (11) dependent on the identified transmission quality and on the modulation method (28) employed.

11. Method according to claim 10, characterized in that the maximum transmission data rate (32) is additionally defined dependent on a specific, maximally
10 allowed error rate (61).

12. Method according to one of the claims 10 and 11, characterized in that, additionally, a transmission data rate (34) a mapping algorithm and a corresponding coding method is selected dependent on the maximum transmission data rate (30) of the transmission channel (11) determined by the definition means (29) and dependent
15 on a requested transmission data rate (32) and maximally acceptable error rate (61).

13. Method according to one of the claims 10 through 12, characterized in that the transmission quality (28) is respectively determined for different modulation methods,
a maximally possible data rate (30) of the transmission channel (11) is defined for
20 each modulation method, and
the modulation method to be employed is selected dependent on the maximum transmission data rate (30) determined for each modulation method.

14. Method according to one of the claims 10 through 13, characterized in that
25 a transmission power for the transmission of the digital information (13) via the transmission channel (11) is boosted or lowered dependent on a difference between the identified transmission quality (46) of the transmission channel (11) and the transmission quality (47) that is required for the defined transmission data rate (34) with a specific, maximally allowed error rate.

16. [sic] Method according to one of the claims 10 through 15 [sic], characterized in that the following steps are implemented for the transmission of the digital information (13):

presentation of the digital information (13) in the form of symbols (16);

5 mapping the symbols (16) onto signal values (18);

transmitting the signal values (18) via the transmission channel (11);

receiving the transmitted signal values (21);

detecting the received signal values (21) and mapping the detected signal values onto detected symbols (23), and

10 converting the detected symbols (23) into a detected digital information (25).

17. Method according to one of the claims 10 through 16, characterized in that the signal-to-noise ratio is identified as criterion for the transmission quality (28).

18. Method for adapting a transmission power for the transmission of digital information (13) via a transmission channel (11) to the transmission quality of the transmission channel (11), comprising the following steps:

15 determining the signal-to-noise ratio (46) of the transmission channel (11);

boosting or lowering the transmission power dependent on the difference between the identified signal-to-noise ratio (46) of the transmission channel (11) and the signal-to-noise ratio (47) of the transmission data rate (34) employed for the transmission of the

20 digital information (13).